

REMARKS

This Amendment is in response to the first Office action (Paper No. 20070228) mailed on 9 March 2007. Reexamination and reconsideration are respectfully requested.

Listing of The Claims

Pursuant to 37 CFR §121(c), the claim listing, including the text of the claims, will serve to replace all prior versions of the claims, in the application.

Status of The Claims

Claims 1 through 10 are pending in this application.

Amendment of The Claims

Claims 1-5, 7, 8 and 10 are amended.

Amendment of The Specification

Paragraphs [0014], [0016], [0017], [0030], [0035], [0036], [0043], [0056], [0060], [0063], [0065], [0069], [0071], [0072], [0084], [0085] and [0087] are amended.

Specifically, the “output port” of a data packet in the original specification is amended to read “output direction” of the data packet to avoid confusion with the “output port” as a component of the router.

Issues Raised by Paper No. 20070228

Claim Rejections - 35 U.S.C. §102

I. Rejection of Claim 9 under 35 U.S.C. §102(e) as being anticipated by Choe (U.S.

Patent # 7031320).

Claim 9 is rejected under 35 U.S.C. §102(e) as being anticipated by Choe (U.S. Patent # 7031320).

I-1. The present application relates to a distributed router and a method for preventing the “ping-pong” phenomenon. The distributed router is constructed with a plurality of line connection units, a main processor, a switching unit, a plurality of forwarding tables in different corresponding ones of the plurality of line connection units, a plurality of forwarding processors in different corresponding ones of the plurality of line connection units. Normally, a packet is transmitted from a first external router to a first line connection unit; the first line connection unit transmits the packet to the switching unit; the switching unit transmits the packet to a second line connection unit as designated by the forwarding information of the packet; and the second line connection unit transmits the packet to a second external router. The “ping-pong” phenomenon occurs when the routing information is updated in the main processor, and the first line connection unit receives the updated forwarding information while the second line connection unit has not receives the updated forwarding information. Therefore, when the first line connection unit transmits the packet to the second line connection unit through the switching unit according to the updated forwarding information, the second line connection unit transmits the packet back to the first line connection unit according to the old, outdated forwarding information. In order to prevent this “ping-pong” phenomenon, the forwarding processor in the second line connection unit checks the forwarding information of the packet received from the switching unit, and discards the packet if the forwarding information indicates that the packet is to be transmitted back to the

first line connection unit.

Therefore, in the ping-pong prevention method of the present application, when a line connection unit receives a packet, the packet might come from a switching unit, or from an external router:

- when the packet comes **from an external router**, the packet is transmitted by the forwarding processor of the line connection unit to the switching unit, and is subsequently transmitted to another line connection unit.
- when the packet comes **from the switching unit**:
 - if the forwarding table of the line connection unit which receives the packet is updated, the output direction of the packet is **toward an external router** and the packet is transmitted to the external router;
 - if the forwarding table of the line connection unit which receives the packet is old, the output direction of the packet is **toward the switching unit** and the packet is discarded.

Choe '320 relates to A method for constructing routing/forwarding tables for an IP address lookup using a skip list. The method comprises dividing a prefix length range of an IP address in a preset method; creating a header node having a maximum level based on a number of clusters divided into the prefix length range, the header node pointing every node in the skip list; and creating subnodes by the number of the divided clusters, the subnodes each having the divided prefix length range as a key.

The pending claims are patentably distinguishable from Choe '320 since Choe '320 merely

discloses looking for the destination path of a packet when the packet arrives at a line card module **from an external source**, and forwarding the packet to an output line card module if the destination path of the packet can be found in a forwarding table in the input line card module, which forwarding the packet from an input line card module to a router processor if the destination path of the packet can not be found in the forwarding table in the input line card module. **Choe '320 does not teach or suggest, however, looking for forwarding information of the packet by the output line card module when the packet arrives at the output line card module from the switching fabric, and discarding the packet when it is determined from the forwarding information that the packet is to be forwarded back to the input line card module.**

I-2. Regarding claim 9, on page 3 of the Office action (Paper No. 20070228), the Examiner stated that Choe '320 discloses "a forwarding processor (fig. 1 (each box) with a FT); fig. 3) making a discontinuance of transmission of any packet received by a corresponding one of said line connection units from said switching unit and designated by a destination address to be subsequently forwarded to said switching unit (column 6, lines 58-67)". Applicant respectfully disagrees with this assertion.

Respectfully, among other deficiencies in the Examiner's proposed combination, Choe '320, and thus, the Examiner's proposed combination **fails to disclose making a determination regarding the output direction of a packet received from a switching unit.** A thorough reading of the cited paragraph (column 6, lines 58-67) of Choe '320 reveals that Choe '320 merely discloses receiving a packet **at an input line card module** from an external source, and transmitting the packet to the routing processor if the destination path of the packet cannot be

found in the forwarding table, and discarding the packet if the destination path cannot be found in the routing table. See the cited passage from Choe '320:

column 6, lines 62-64, "After finding its destination, the packet must route to the switch fabric 130 again to transfer the packet to the **output** line card module 110".

Therefore, the process of finding the destination path and transmitting is performed when the packet arrives at **the input line card module from an external source**, instead of when the packets arrives at the output line card module from the switching fabric. When the packet arrives at the input line card module from an external source, the destination path of the packet must designate the packet to be transmitted to an output line card module through the switching fabric. In other words, the output direction of the packet received by an line card module from an external device must be toward the switching fabric. Therefore, the forwarding engine of Choe '320 does not have to determine whether the output direction of the packet received by the line card module from an external device is toward the switching fabric or toward the external device.

In addition, **Choe '320 does not teach or suggest discontinuing transmission of a packet which is received by the line connection unit from the switching unit**, when the destination address of the packet designates that the packet needs to be forwarded back to the switching unit as claimed by claim 9. The case that the packet needs to be forwarded back to the switching unit occurs when it is determined that the packet received from switching unit needs to be transmitted to another line connection unit through the switching unit. See the cited passage of the present application:

page 14, paragraph [0056], lines 9-15, "In other words, when a packet is received from switching unit 330 by either main processor 340 or by forwarding processors 311,

312 of line connection units 310, 320, and the address carried by that packet indicates that **the destination address of that packet is back through switching unit 330**, the designation address is recognized as erroneous and that packet is discarded, thereby preventing that packet from being subjected to the ping-pong phenomenon and with repeated erroneous transmissions from, and to, switching unit 330 precipitated, by, for example, out-of-date routing information”.

In short, the express statements set forth on page 3 of Paper No. 20070228 have no basis in the record of this prosecution history, except in Applicant’s pending claims. Therefore, claim 9 is patentably distinguishable from Choe ‘320.

Claim Rejections - 35 U.S.C. §103

II. Rejection of Claims 1, 2, 5-7 and 8-10 [*sic*, “10”] under 35 U.S.C. §103(a) as being unpatentable over Choe (U.S. Patent # 7031320), in view of Chowdhury et al. (U.S. Patent # 6,631,136).

Claims 1, 2, 5-7 and 8-10 [*sic*, “10”] are rejected under 35 U.S.C. §103(a) as being unpatentable over Choe (U.S. Patent # 7031320), in view of Chowdhury et al. (U.S. Patent # 6,631,136).

II-1. Chowdhury ‘136 discloses a data communication method that enables the transfer of data having different protocols without requiring increased bandwidth in the transmission line. The system efficiently re-routes data in the event of network alterations and determines a fast and efficient way to transport data based on the then-existing network structure using link-state and distance vector techniques. Chowdhury ‘136 does not teach or suggest discarding the packet received from the switching unit when it is determined that the packet is to be send back to the

switching unit.

II-2. Claim 1

II-2-1. Regarding claim 1, on page 6 of the Office action (Paper No. 20070228), the Examiner stated that Choe '320 discloses a plurality of forwarding processors "to determine whether an output port of a packet received from the switching unit is connected to the external router or to the switching unit by looking-up the forwarding information in the corresponding forwarding table for the packet (column 7, lines 31-38), and to transmit the packet to the external router when the output port is connected to the external router (column 6, lines 58-64)". Applicant respectfully disagree with this assertion.

Respectfully, Choe '320 fails to disclose making a determination regarding the output direction of a packet received from a switching unit. The cited passages of Choe '320 merely discloses a process of transmitting the packet when the packet is received by a line card module from an external source before the packet is transferred to the switching unit. See the cited passage from Choe '320:

column 6, lines 62-64, "**After finding its destination, the packet must route to the switch fabric 130 again to transfer the packet to the output line card module 110**".

Therefore, the process of finding the destination path and transmitting the packet is performed at the **input line card module**, instead of at the output line card module when the packets is transmitted from the switch fabric to the output line card module. When the packet is received at the input line card module from an external device, the destination path of the packet must designate the packet to be transmitted to an output line card module through the switching fabric.

In other words, the output direction of the packet received by a line card module from an external device must be toward the switching unit. There is no disclosure in Choe '320 regarding a process of transmitting a packet when the packet is received by a line card module from a switching fabric. Therefore, the forwarding engine of Choe '320 does not have to determine whether the output direction of the packet received by the line card module from an external device is toward the switching fabric or toward the external device as is claimed by claim 1 of the present application. In comparison, claim 1 claims that when a packet is received by a line connection unit from a switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router. The situation that the output direction of the packet received from the switching unit is toward the switching unit occurs when the forwarding table of the line connection unit which receives the packet from the switching unit is not updated, and thus does not carry the correct forwarding information to transmit the packet toward the external router.

Therefore, Choe '320 fails to teach or suggest the pending claim 1's "determine whether an output direction of a packet received from the switching unit is toward an external router or toward the switching unit by looking-up the forwarding information in the corresponding forwarding table for the packet, to transmit the packet to the external router when the output direction is toward the external router".

II-2-2. Regarding claim 1, on page 6 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if

the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines 1-14)". Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury '136 merely discloses preventing sending messages to non-existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither "switch unit" nor "discarding the packet" in Chowdhury '136.** Therefore, Chowdhury '136 does not teach or suggest "discarding the packet if the output direction of the packet is toward the switch unit" as claimed in the pending claim 1.

II-2-3. Regarding claim 1, on page 6 of the Office action (Paper No. 20070228), the Examiner stated that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced". Applicant respectfully disagree with this assertion.

Respectfully, nowhere in the combination of Choe '320 and Chowdhury '136 does Choe '320 or Chowdhury '136 teach or suggest that when a packet is received by a line connection unit from the switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router, and transmits the packet to the external router when the output direction of the packet is toward the external router, and discards the packet when the output direction of the packet is toward the switching unit, as claimed in claim 1. Therefore, claim 1 is patentably distinguishable from the combination of Choe '320 and

Chowdhury '136.

II-3. Claim 5

II-3-1. The step 3 of the pending claim 5 is amended to read that when the forwarding processor receives a packet from an external router, the forwarding processor transmits the packet to the switching unit; when the forwarding processor receives a packet from a switching unit and the output direction of the packet is toward the switching unit, the forwarding processor discards the packet; when the forwarding processor receives a packet from a switching unit and the output direction of the packet is not toward the switching unit, the forwarding processor transmits the packet.

Respectfully, according to column 6, lines 58-64 of Choe '320, Choe '320 merely discloses when a line card module receives a packet from an external source, the packet is transmitted to the switching fabric, and is subsequently transmitted to another line card module, i.e., output line card module. **There is no disclosure in Choe '320 that when the line card module receives a packet from the switching fabric** and the output direction of the packet is toward the switching fabric, the line card module discards the packet; when the line card module receives a packet from the switching fabric and the output direction of the packet is not toward the switching fabric, the line card module transmits the packet.

II-3-2. Regarding claim 5, on page 8 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines

1-14)”. Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury ‘136 merely discloses preventing sending messages to non-existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither “switch unit” nor “discarding the packet” in Chowdhury ‘136.** Therefore, Chowdhury ‘136 does not teach or suggest “discarding the packet if the output direction of the packet is toward the switch unit” as claimed in claim 5.

II-3-3. Regarding claim 5, on page 8 of the Office action (Paper No. 20070228), the Examiner stated that “it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced”. Applicant respectfully disagree with this assertion.

Respectfully, no where in the combination of Choe ‘320 and Chowdhury ‘136 does Choe ‘320 or Chowdhury ‘136 teach or suggest that when the forwarding processor receives a packet from a switching unit and the output direction of the packet is toward the switching unit, the forwarding processor discards the packet, and when the forwarding processor receives a packet from a switching unit and the output direction of the packet is not toward the switching unit, the forwarding processor transmits the packet, as claimed in claim 5. Therefore, claim 5 is patentably distinguishable from the combination of Choe ‘320 and Chowdhury ‘136.

II-4. Claim 7

II-4-1. Regarding claim 7, on page 9 of the Office action (Paper No. 20070228), the

Examiner stated that Choe '320 discloses "a step 3-2 with the forwarding processor ascertaining the output port of the packet received by searching the forwarding table for the output port of the packet received from the switching unit, and transmitting the packet when the output port is an external router (column 6, lines 58-64)". Applicant respectfully disagree with this assertion.

Respectfully, Choe '320 fails to disclose making a determination regarding the output direction of a packet received from a switching unit. The cited passages of Choe '320 merely discloses a process of transmitting the packet when the packet is received by a line card module from an external source, instead of from a switching unit, as is claimed in claim 7. See the cited passage from Choe '320:

column 6, lines 62-64, "**After** finding its destination, the packet must route to the switch fabric 130 again to transfer the packet to the **output line card module 110**".

Accordingly, in Choe '320, the packet is received by the line card module from an external source, transmitted to the switching fabric, and subsequently transmitted to the output line card module. Therefore, Choe '320 disclosure merely corresponding to step 3-1 of claim 7. There is no disclosure in Choe '320 regarding processing a packet received from a switching unit.

II-4-2. Regarding claim 7, on page 9 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines 1-14)". Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury '136 merely discloses preventing sending messages to non-

existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither “switch unit” nor “discarding the packet” in Chowdhury ‘136.** Therefore, Chowdhury ‘136 does not teach or suggest “discarding the packet if the output direction of the packet is toward the switch unit” as claimed in claim 7.

II-4-3. Regarding claim 7, on page 9 of the Office action (Paper No. 20070228), the Examiner stated that “it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced”. Applicant respectfully disagree with this assertion.

Respectfully, no where in the combination of Choe ‘320 and Chowdhury ‘136 does Choe ‘320 or Chowdhury ‘136 teach or suggest the forwarding processor ascertaining the output direction of the packet received from the switching unit by searching the forwarding table, and transmitting the packet when the output direction is toward an external router, as is claimed in step 3-2 of claim 7, and the forwarding processor ascertaining the output direction of the packet received from the switching unit by searching the forwarding table, and discarding the packet when the output direction is toward the switching unit, as is claimed in step 3-3 of claim 7. Therefore, claim 7 is patentably distinguishable from the combination of Choe ‘320 and Chowdhury ‘136.

II-5. Claim 4

II-5-1. Regarding claim 4, on page 9 of the Office action (Paper No. 20070228), the

Examiner stated that Choe '320 discloses "a plurality of main processors positioned in corresponding different ones of the plurality of line connection units, to construct and manage a routing table (column 6, lines 40-47), receive changes in routing information from adjacent routers (column 6, lines 48-53), update the routing table (column 7, lines 14-15), and broadcast changes (column 7, lines 14-19) of routing information through IPC paths (fig. 4 (switch or ipc interface)) of the distributed router". Applicant respectfully disagree with this assertion.

Respectfully, **Choe '320 does not teach or suggest that the routing processor is positioned inside the line card module, and a router may include more than one routing processor.** Choe '320 merely discloses a single routing processor positioned outside of the line card module. Please see FIG. 1. Also see the cited passage from Choe '320:

column 6, lines 42-45, "...the router includes a line card module 110 equipped with a forwarding engine FE, through which the packets are input and output, **a routing processor 120** for building up an initial routing table RT and managing the routing table...".

In contrast, claim 4 claims that a plurality of main processors are positioned in corresponding different ones of the plurality of line connection units. Therefore, claim 4 is patentably distinguishable from Choe '320.

II-5-2. Regarding claim 4, on page 10 of the Office action (Paper No. 20070228), the Examiner stated that Choe '320 discloses a plurality of forwarding processors "to determine whether an output port of a packet received from the switching unit is connected to the external router or to the switching unit by looking-up the forwarding information in the corresponding forwarding table for the packet (column 7, lines 31-38), and to transmit the packet to the external

router when the output port is connected to the external router (column 6, lines 58-64)". Applicant respectfully disagree with this assertion.

Respectfully, **Choe '320 fails to disclose making a determination regarding the output direction of a packet received from a switching unit.** The cited passages of Choe '320 merely discloses a process of transmitting the packet when the packet is received by a line card module from an external source before the packet is transferred to the switching unit. See the cited passage from Choe '320:

column 6, lines 62-64, "**After** finding its destination, the packet must route to the switch fabric 130 again to transfer the packet to the **output line card module 110**".

Therefore, the looking-up for the destination path and transmitting the packet are performed at the **input line card module**, instead of at the output line card module when the packets is transmitted from the switching fabric to the output line card module. When the packet is received at the input line card module from an external device, the destination path of the packet must designate the packet to be transmitted to an output line card module through the switching fabric. In other words, the output direction of the packet received by an line card module from an external device must be toward the switching unit. There is no disclosure in Choe '320 regarding a process of transmitting a packet when the packet is received by a line card module from a switching fabric. Therefore, the forwarding engine of Choe '320 does not have to determine whether the output direction of the packet received by the line card module from an external device is toward the switching fabric or toward the external device as is claimed by claim 4 of the present application. In comparison, claim 4 claims that when a packet is received by a line connection unit from a

switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router. The situation that the output direction of the packet received from the switching unit is toward the switching unit occurs when the forwarding table of the line connection unit which receives the packet from the switching unit is not updated, and thus does not carry the correct forwarding information to transmit the packet toward the external router.

Therefore, Choe '320 fails to teach or suggest claim 4's "determine whether an output direction of a packet received from the switching unit is toward an external router or toward the switching unit by looking-up the forwarding information in the corresponding forwarding table for the packet, to transmit the packet to the external router when the output port is connected to the external router".

II-5-3. Regarding claim 4, on page 10 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines 1-14)". Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury '136 merely discloses preventing sending messages to non-existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither "switch unit" nor "discarding the packet" in Chowdhury '136.** Therefore, Chowdhury '136 does not teach or suggest "discarding the packet if the output direction of the packet is toward the switch unit" as claimed in claim 4.

II-5-4. Regarding claim 4, on page 10 of the Office action (Paper No. 20070228), the Examiner stated that “it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced”. Applicant respectfully disagree with this assertion.

Respectfully, no where in the combination of Choe ‘320 and Chowdhury ‘136 does Choe ‘320 or Chowdhury ‘136 teach or suggest that when a packet is received by a line connection unit from a switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router, and transmits the packet to the external router when the output direction of the packet is toward the external router, and discards the packet when the output direction of the packet is toward the switching unit, as is claimed in claim 4. Therefore, claim 4 is patentably distinguishable from the combination of Choe ‘320 and Chowdhury ‘136.

II-6. Claim 10

II-6-1. Regarding claim 10, on page 11 of the Office action (Paper No. 20070228), the Examiner stated that Choe ‘320 discloses that the forwarding processor comprised of “when the packet has been received from said switching unit and said destination address indicates an output port of said corresponding one of said line connection units coupled to an external router, transmitting the packet to the external router (column 6, lines 58-64)”. Applicant respectfully disagree with this assertion.

Respectfully, Choe '320 fails to disclose making a determination regarding the output direction of a packet received from a switching unit. Choe '320 merely discloses a case when the packet is received from an external source.

II-6-2. Regarding claim 10, on page 11 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines 1-14)". Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury '136 merely discloses preventing sending messages to non-existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither "switch unit" nor "discarding the packet" in Chowdhury '136.** Therefore, Chowdhury '136 does not teach or suggest "discarding the packet if the output direction of the packet is toward the switch unit" as claimed in claim 10.

II-6-3. Regarding claim 10, on page 11 of the Office action (Paper No. 20070228), the Examiner stated that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced". Applicant respectfully disagree with this assertion.

Respectfully, no where in the combination of Choe '320 and Chowdhury '136 does Choe '320 or Chowdhury '136 teach or suggest that when a packet is received by a line connection unit

from a switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router, and transmits the packet to the external router when the output direction of the packet is toward the external router, and discards the packet when the output direction of the packet is toward the switching unit, as is claimed in claim 10. Therefore, claim 10 is patentably distinguishable from the combination of Choe '320 and Chowdhury '136.

Claim Rejections - 35 U.S.C. §103

III. Rejection of Claims 3 and 8 under 35 U.S.C. §103(a) as being unpatentable over Choe (U.S. Patent # 7031320), in view of Chowdhury et al. (U.S. Patent # 6,631,136), and further in view of Dobbins et al. (U.S. Patent # 5,751,971).

Claims 3 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Choe (U.S. Patent # 7031320), in view of Chowdhury et al. (U.S. Patent # 6,631,136), and further in view of Dobbins et al. (U.S. Patent # 5,751,971).

III-1-1. Regarding claim 3, on page 12 of the Office action (Paper No. 20070228), the Examiner stated that Choe '320 discloses a lookup control unit "making any one determination of packet transmission when an output port of the packet input from the switching unit is a port directed to an external router (column 6, lines 58-64)". Applicant respectfully disagree with this assertion.

Respectfully, Choe '320 fails to disclose making a determination regarding the output direction of a packet received from a switching unit as is claimed in claim 3. Choe '320 merely discloses a case when the packet is received from an external source.

III-1-2. Regarding claim 3, on page 12 of the Office action (Paper No. 20070228), the Examiner admitted that Choe '320 "fails to disclose that the packet will be discarded if the output is connected to the switch". The Examiner further stated that Chowdhury '136 discloses "that if the output port is the switch, the packet will not be routed (column 7, lines 60-67; column 8, lines 1-14)". Applicant respectfully disagree with this assertion.

Respectfully, Chowdhury '136 merely discloses preventing sending messages to non-existing destinations or on non-existing paths by converging the routers in the network, and deleting the entry of the converged path. **There is neither "switch unit" nor "discarding the packet" in Chowdhury '136.** Therefore, Chowdhury '136 does not teach or suggest "discarding the packet if the output direction of the packet is toward the switch unit" as claimed in claim 3.

III-1-3 . Regarding claim 3, on page 12 of the Office action (Paper No. 20070228), the Examiner stated that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a distributed router, as taught by Choe, and the implementation of loop prevention method, as taught by Chowdhury et al, so that the flow of packets in the distributed network will be enhanced". Applicant respectfully disagree with this assertion.

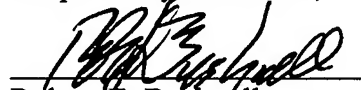
Respectfully, no where in the combination of Choe '320 and Chowdhury '136 does Choe '320 or Chowdhury '136 teach or suggest that when a packet is received by a line connection unit from a switching unit, the forwarding processor determines whether the output direction of the packet is toward the switching unit or toward the external router, and transmits the packet to the external router when the output direction of the packet is toward the external router, and discards

the packet when the output direction of the packet is toward the switching unit. Therefore, claim 10 is patentably distinguishable from the combination of Choe '320 and Chowdhury '136.

In view of the foregoing amendments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. If there are any questions, the examiner is asked to contact the applicant's attorney.

No fee is incurred by this Amendment.

Respectfully submitted,



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